Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the Application:

Claims 1 to 45 (Cancelled)

46. (New) A mold system having an internal cooling arrangement and requiring heat to be taken from a mold from time to time, wherein the mold includes at least one completely closed chamber having air substantially removed therefrom to provide a closed system having a chamber filled with a fluid supplied to the mold, a separating wall or walls between a cavity, and said closed chamber having an even thickness throughout substantially all of the walls or walls between the cavity and the chamber, said completely closed chamber being provided with a single quantity of fluid therein after the liquid portion of the fluid is supplied to the mold which extends to cover at least one of the areas from which heat is to be taken, said completely closed chamber being integrated with the mold, there being a space above the liquid portion of the single quantity of fluid within the completely closed chamber in which pressure within the space is caused to be set at a level which will enable the liquid portion to boil whenever there is a temperature differential between any two locations within the chamber, said single quantity of fluid being fed through and guided by a first conduit communicating with said closed chamber and the liquid portion and a second conduit communicating with said first conduit and said closed chamber and the space above the liquid portion of the single quantity of fluid to form a passageway for vapor or vapors formed from heat of evaporation extracted from said completely closed chamber through said second conduit and supplied to a condensing or heat exchange means for condensing and using the same single quantity of fluid in the closed chamber and resultant vapor is condensed at the location with the lower temperature, such effect being used to maintain a substantially uniform temperature throughout the completely closed chamber which is also maintained at a selected temperature, and said single quantity of fluid communicates with said condensing means for effecting, by cooling, condensation of the vapor or vapors from the

single quantity fluid in the space flowing through said second conduit so that there is a saturated state of the vapor in the space, the single quantity of fluid having a volume such that it has an upper level above one of the areas of the mold to be cooled and substantially only the vapor of the liquid within the chamber above the passageway and the upper level of the liquid portion so that the completely closed chamber keeps the same single quantity of fluid throughout the full cooling process and the total overall temperatures of the mold is kept relatively uniform and provides for effective heat transmission throughout the mold during the molding process and the vapor after passing through said condensing or heat exchange means returns as a liquid solely to said liquid portion in the mold through said first conduit.

47 (New) The mold system as claimed in claim 46 wherein the chamber having separating walls of a substantially even thickness through all of the walls are shaped to follow the shape of molding surfaces and positioned so that all of adjacent working surfaces of the cavity are serviced equally by the single quantity of fluid therein.

48. (New) A mold system for effecting heat transfer within a mold to effect substantial uniformity of temperature of a surface or surfaces defining a molding cavity, and within which mold there is at least one adjacent closed chamber, the mold having a separating wall or walls between the molding cavity and the chamber, the said wall or walls between the said cavity and chamber having a substantially even thickness, fluid filling the closed chamber with a liquid portion and a saturated vapor portion, the level of the liquid portion being sufficient to cover an area or areas of the said wall or walls of the chamber from which heat is to be taken, and within the space above the liquid portion of the fluid, such space containing substantially only the vapor of the fluid, the pressure in the space thereby being substantially equal to the vapor pressure of the fluid which results in, upon there being a temperature differential between any portion of the surface of the wall or walls and a cooler portion of the surface of the wall or walls within the space, some liquid of the fluid boiling at the said higher temperature location and effecting thereby removal of heat as latent heat of vaporization from the higher temperature location through a phase conversion of the fluid to a vapor and thereafter effecting, by

condensation of the vapor which effects release of its latent heat of vaporization at a said lower temperature location in the space above the said liquid whereby to reduce said temperature differential and, by condensation of the fluid to be within a selected range.

49. (New) The mold system as claimed in claim 48, wherein the separating wall or walls defining a wall portion between the chamber and the cavity have substantially uniform thickness of a consistent heat transferability material.

50. (New) The mold system as claimed in claim 48, wherein the chamber is shaped to follow the shape of molding surfaces and positioned so that all adjacent working surfaces of the mold are serviced substantially equally by the fluid therein and the liquid portion will have effective access to each of the areas of the mold from which heat is to be taken.

51. (New) The mold system as claimed in claim 48, wherein the ratio of vapor portion within the space in the chamber above the liquid portion and the liquid portion varies in response to boiling of the liquid portion for achieving a substantially uniform temperature profile across the adjacent working surfaces of the mold.

52. (New) The mold system as claimed in claim 48, including heating means for maintaining the temperature of the mold within the selected range, and said heating means being located within the chamber within the fluid for maintaining the temperature of the mold within the selected range during a standby time.

53. (New) The mold system as claimed in claim 48, wherein the chamber is maintained at a uniform temperature by using the phase change properties of the liquid portion, and the cooling chamber is structured such that the distance from all points on the molding surfaces of the cavity which are immediately adjacent the surfaces of the chamber are substantially equal, thereby ensuring that temperature differentials between said points and the cooling chamber are as equal as possible.

54. (New) An apparatus for molding products wherein there is included a mold adapted to effect heat transfer within the mold to effect substantial uniformity of temperature of a surface or surfaces defining a molding cavity, and within which mold

there is at least one adjacent closed chamber, the mold having a separating wall or walls between the molding cavity and the chamber, the said wall or walls between the said cavity and chamber having a substantially even thickness, fluid filling the closed chamber with a liquid portion and a saturated vapor portion, the level of the liquid portion being sufficient to cover an area or areas of the said wall or walls of the chamber from which heat is to be taken, and within the space above the liquid portion of the fluid, such space containing substantially only the vapor of the fluid, the pressure in the space thereby being substantially equal to the vapor pressure of the fluid which results in, upon there being a temperature differential between any portion of the surface of the wall or walls and a cooler portion of the surface of the wall or walls within the space, some liquid of the fluid boiling at the said higher temperature location and effecting thereby removal of heat as latent heat of vaporization from the higher temperature location through a phase conversion of the fluid to a vapor and thereafter effecting, by condensation of the vapor which effects release of its latent heat of vaporization at a said lower temperature location in the space above the said liquid whereby to reduce said temperature differential and, by condensation of vapor at a condenser which is cooled from time to time so as to control the temperature of the fluid to be within a selected range of temperatures.

55. (New) The apparatus as claimed in preceding claim 54 wherein the liquid portion is water.

56. (New) The apparatus as claimed in preceding claim 54, wherein the saturated vapor portion is water vapor.

57. (New) A mold having an internal cooling arrangement and having a completely closed chamber partially filled with a single quantity of fluid therein adjacent to molding cavity, a separating wall or walls between the cavity and the chamber, the separating wall or walls having a substantially even thickness through substantially all of the walls where between said cavity and said chamber conforming to the shape of the adjacent surface of the molding surface, the liquid portion of the fluid extends to cover at least one of the areas from which heat is to be taken, said completely closed chamber being integrated with and shaped to conform with the mold and a space above the liquid

portion of the single quantity of fluid and within the completely closed chamber in which pressure within the space is caused to be set at a level which will enable, whenever there is a temperature differential between any two locations within the chamber, the liquid portion of the single quantity of fluid to boil at the location with the higher temperature and the resultant vapor to condense at the location with the lower temperature, such effect being used to maintain a substantially uniform temperature throughout the completely closed chamber which is also maintained at a selected temperature range when the mold is in use and condensing means within said space for using the same single quantity of fluid in the completely closed chamber, and said condensing means asserting maintenance of the selected temperature, said condensing means including a condensing area, a first passageway having one end forming a liquid portion outlet from said condensing area and a second end coupled to said chamber forming a liquid portion inlet to said chamber and a second passageway separate from said first passageway having one end forming a vapor outlet for said vapor above said upper level and a second end coupled to said condensing area for receiving vapor or vapors formed from heat of vaporization for extraction through said second passageway, and the vapor is condensed into a liquid portion in said condensing area and returned by said liquid portion in said chamber through said first passageway.

58. (New) The mold as claimed in claim 57, wherein said completely closed chamber includes said condensing means and said first and said second passageways, and at least heating means located within the chamber within the liquid portion such that during a standby time, for keeping the temperature of the mold close to the selected temperature range.

59. (New) The mold as claimed in claim 57, wherein the internal cooling arrangement additionally includes cooling means comprising a tube forming said second passageway, a core in the tube and means for directing cooling water flowing through the tube.

60. (New) A mold having an internal cooling arrangement using a single cooling fluid and including a completely closed chamber having air substantially removed therefrom and to effect substantial uniformity of temperature of molding surfaces of a molding cavity, the liquid portion of the fluid extending to cover at least one of the areas from which heat is to be taken, a separating wall or walls between the cavity and the chamber, said separating wall or walls having a substantially even thickness through substantially all of the wall or walls where between the cavity and the chamber conforms to the shape of the adjacent surface of the molding surface, said completely closed chamber being integrated with the mold and a space above the liquid portion of the single quantity of fluid and within the completely closed chamber in which pressure within the space is caused to be set at a level which will enable, whenever there is a temperature differential between any two locations within the chamber, the liquid portion of the single quantity of fluid to boil at the location with the higher temperature and the resultant vapor to condense at the location with the lower temperature, such effect being used to maintain a substantially uniform temperature throughout the completely closed chamber which is also maintained at a selected temperature when in use by providing, in the space above the liquid portion of the single quantity of fluid, a condenser for asserting the maintenance of the selected temperature, and an upper level of the level of the liquid portion being of sufficient height so that at least some areas of the mold within the completely closed chamber and adjacent parts of the mold to be cooled are accessed by the cooling fluid when the mold is in use and, in a space in the chamber above the liquid portion of the fluid, substantially only vapor derived from the single cooling fluid, and means for providing cooling of any vapor resulting from the single cooling fluid within the space in the chamber above the level of the liquid portion to effect at least some condensation of the vapor or vapors formed from heat of vaporization thereby so that the overall temperature of the mold is kept relatively uniform and heat is dissipated by the cooling of the vapor, and said condenser including a condensing area, a first passageway having one end forming a liquid outlet from said condenser and a second end forming a liquid inlet to said liquid portion below said upper level and a second passageway having

one end forming a vapor outlet for the vapor above said upper level and a second end coupled to said condensing area, and vapor or vapors formed from heat of vaporization is extracted through said second passageway and the vapor is condensed into liquid in said condensing area and returned by gravity to said lower level of the liquid through said first passageway whereby said first and said second passageways are separate from each other.

61. (New) The mold as claimed in claim 60, wherein the internal cooling arrangement additionally includes cooling means comprising a tube forming said second passageway, a core in the tube and means for directing cooling water flowing through the tube.

62. (New) A method of cooling of working parts of a mold wherein the mold has at least one completely closed chamber adjacent to a molding cavity, said closed chamber having air substantially removed therefrom and having a single quantity of fluid therein which extends to cover at least one of the areas from which heat is to be taken, each of said at least one completely closed chamber being adjacent to the molding cavity and separating wall or walls between the cavity and the chamber having substantially even or uniform thickness through all of the walls between said cavity and said chamber conforming to the shape of the adjacent surface of the molding surface, the chamber being integrated with the mold and a space above the liquid portion of single quantity of fluid and within the completely closed chamber in which pressure within the space is caused to be set at a level which will enable the single quantity of fluid to boil at a selected temperature, said selected temperature being at a level such that the temperature is below a temperature of the areas from which heat is to be taken and passing at a selected cooling temperature, the single quantity of fluid through a coolant to effect, by such cooling, condensation of vapor of the single quantity of fluid in the space to return the condensed vapor to the single quantity of fluid.

63. (New) The method as claimed in claim 62, including during a standby time, maintaining the temperature of the mold for keeping the temperature close to the selected temperature.

64. (New) A method of molding a product which includes the step of introducing a material to be molded into a mold where there is then effected heat transfer within the mold to achieve a substantial uniformity of temperature of a substantial portion of a surface or surfaces defining a molding cavity, and within which mold there is at least one adjacent closed chamber, the mold having a separating wall or walls between the molding cavity and the chamber, the said wall or walls between the said cavity and chamber having a substantially even thickness, fluid filling the closed chamber with a liquid portion and a saturated vapor portion, the level of the liquid portion being sufficient to cover an area or areas of the said wall or walls of the chamber from which heat is to be taken, and within the space above the liquid portion of the fluid, such space containing substantially only the vapor of the fluid, the pressure in the space thereby being substantially equal to the vapor pressure of the fluid which results in, upon there being a temperature differential between any portion of the surface of the wall or walls and a cooler portion of the surface of the wall or walls within the space, some liquid of the fluid boiling at the said higher temperature location and effecting thereby removal of heat as latent heat of vaporization from the higher temperature location through a phase conversion of the fluid to a vapor and thereafter effecting, by condensation of the vapor which effects release of its latent heat of vaporization at a said lower temperature location in the space above the said liquid whereby to reduce said temperature differential and, by condensation of vapor at a condenser which is cooled from time to time so as to control the temperature of the fluid to be within a selected range.

65. (New) A method of operating a mold where there are means effecting heat transfer within a mold to effect substantial uniformity of temperature of a surface or surfaces defining a molding cavity, and within which mold there is at least one adjacent closed chamber, the mold having a separating wall or walls between the molding cavity and the chamber, the said wall or walls between the said cavity and chamber having a

substantially even thickness so that, fluid filling the closed chamber with a liquid portion and a saturated vapor portion, the level of the liquid portion being sufficient to cover an area or areas of the said wall or walls of the chamber from which heat is to be taken, and within the space above the liquid portion of the fluid, such space containing substantially only the vapor of the fluid, the pressure in the space thereby being substantially equal to the vapor pressure of the fluid which results in, upon there being a temperature differential between any portion of the surface of the wall or walls and a cooler portion of the surface of the wall or walls within the space, some liquid of the fluid boiling at the said higher temperature location and effecting thereby removal of heat as latent heat of vaporization from the higher temperature location through a phase conversion of the fluid to a vapor and thereafter effecting, by condensation of the vapor which effects release of its latent heat of vaporization at a said lower temperature location in the space above the said liquid whereby to reduce said temperature differential and, by condensation of vapor at a condenser which is cooled from time to time, the method including the step of effecting a cooling of the condenser by controlling a passage of coolant through the condenser so as to maintain the temperature of the fluid within a selected range.

66. (New) A method of effecting heat transfer within a mold to effect substantial uniformity of temperature of molding surfaces of a molding cavity, there being at least one adjacent closed chamber adjacent to the molding cavity, a separating wall or walls between the cavity and the chamber the said separating wall or walls having a substantially even thickness through substantially all of the wall or walls where between the said cavity and chamber wherein the shape of the adjacent surface of the molding surface, filling the closed chamber with fluid so that there is a liquid portion and a saturated vapor portion of the fluid within the chamber, and including a condenser within the chamber.